DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

Bay Area Branch
690 Walnut Ave.St. 150
Vallejo, CA 94592-1133
(707) 649-5453
(707) 649-5493

Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 69.28

WELDING INSPECTION REPORT

Resident Engineer: Pursell, Gary
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-002491
Date Inspected: 20-May-2008

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island

OSM Arrival Time: 630
OSM Departure Time: 1530
Location: Changxing Island

CWI Name:	See below		**CWI Present:**	☑ Yes	☐ No
Inspected CWI report:	☐ Yes	☑ No ☐ N/A	**Rod Oven in Use:**	☐ Yes	☑ No ☐ N/A
Electrode to specification:	☑ Yes	☐ No ☐ N/A	**Weld Procedures Followed:**	☑ Yes	☐ No ☐ N/A
Qualified Welders:	☑ Yes	☐ No ☐ N/A	**Verified Joint Fit-up:**	☑ Yes	☐ No ☐ N/A
Approved Drawings:	☑ Yes	☐ No ☐ N/A	**Approved WPS:**	☑ Yes	☐ No ☐ N/A
			Delayed / Cancelled:	☐ Yes	☑ No ☐ N/A

Bridge No: 34-0006
Component: Skin plates

Summary of Items Observed:

The name of ABF Certified Welding Inspector (CWI) are Mr. Wang Cheng Jun, Mr. Yang Yi Heng, Mr. Kong Xian Hui and Mr. Dai Zing Wen.

"Push down" Heat straightening on skin plate (Tower bay#1 and bay #2) Caltrans Quality Assurance Inspector (QAI) observed few Zhenhua Port Machinery Co (ZPMC) heat straightening operators performed heat straightening with ZPMC Heat Straightening Report (HSR) on plate numbered P56, P148 and P150. The heating temperature is maximum 650 C (1200 F) and cool in still air. All the plates have been monitored and recorded and inspected by ZPMC QC required within from 0.5mm to 1mm off set (Caltrans requirement Max 3mm) after heat straightening to cooled to ambient temperature. Based on Caltrans QAI observation, no discrepancies were noted.

Magnetic particle testing (MT) on splice welds (Tower bay#1 and bay #2): A ZPMC MT technicians performed QC 25% MT testing on three splice weld of skin plates. The test splice weld numbered # SSD1-SA17A/G-16B The grease, rust, scale and other moisture have been removed by ZPMC workers on both side 200mm of splice weld areas prior MT testing. The power source of MT testing is used electromagnetic yoke with Alternating Current (AC) made by Magnaflux. The detection media is used dry red ferromagnetic particles. The technique uses dry particles that are applied while the magnetizing force is on. A field indicator used to check the magnetic filed direction and to ensure adequate field strength during MT testing. The 25% MT testing of three splice weld areas appeared to be in compliance with the requirements of AWS D1.5 (2002) and Caltrans contract documents.

Ultrasonic Testing (UT) on repair butt joint weld of skin plate (Tower bay#1): Caltrans QA observed Zhenhua Port Machinery Co (ZPMC) two NDT level II technicians performed angle beam UT on two splice welds of skin plate. The weld numbered # SSD1-SA178A/d-12B and SSD1-SA178A/D-11B. The metrical of skin plate is ASTM 709

345 wall thickness from 45mm and the test surface has been cleaned. First processes, an 250mm range reflection has calibrated on “A scan” digital display instrument Parametric model Epoch XT was used, a straight beam search unit, is a 25mm diameter x 2.5 MHz single transducer applied a source of compression waves, and penetrated into both side head affected zone of splice weld for laminar discontinuities scanning. Second processes, an angle beam search unit, is an angle wedge 70 degrees applied a source of shear waves, and passes through base weld for the detection of discontinuities. The distance and sensitivity of straight beam and angle beam are calibrated with the International Institute of welding (IIW) ultrasonic reference block. The SWUT test operated and recorded by ZPMC technicians appeared to be in general compliance with requirements of AWS Structural Welding Code D1.5 2002.

Submerged Arc Welding (SAW) process on skin plate (Tower bay#1 and bay#2): Caltrans QAI observed four ZPMC welding operators performed semi-automatic SAW on the splice weld of ASTM 709 345 skin plate numbered P598 to P1561 with 90mm wall thickness, weld# ESD1-SA77A/E-36B, skin plate numbered P602 to P1561 with 60mm wall thickness, weld# ESD1-SA77A/E-34B, skin plate numbered P1401 to P1405 with 45mm wall thickness, weld# ESD1-SA294A/G-4A, skin plate numbered P594 to P751 with 90mm wall thickness, weld# ESD1-SA77A/E-37B, skin plate numbered P601 to P751 with 90mm wall thickness, weld# ESD1-SA77A/E-35B, skin plate numbered SA653 to P186 with 70mm wall thickness, weld# WSD1-SA653A/F-1A, skin plate numbered P186 to P13 with 70mm wall thickness, weld# WSD1-SA653A/F-2A, and skin plate numbered P853 to P838 with 45mm wall thickness, weld# ESD1-SA80A/E-43A. The weld designed is a double -V-groove with welding conducted in the in flat position (1G) with proper 4.8mm diameter wire feed electrode JW3 and flux/J1-B, made by China Company and completed with approximate five pass. The parameters used for SAW welding of splice weld was conducted in accordance with Caltrans approved WPS-B-T-2221-B-U3. The semi-automatic SAW was monitored and recorded by ABF Certified Welding Inspector (CWI) Mr. Wang Cheng Jun, Mr. Yang Yi Heng, Mr. Kong Xian Hui and Mr. Dai Zing Wen. Based on Caltrans QAI observations, no discrepancies were noted.

Summary of Conversations:

As Note within the report above.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Wahbeh Mazen (818)292-0659, who represents the Office of Structural Materials for your project.

Inspected By:	Pau,Wai	Quality Assurance Inspector
Reviewed By:	Cochran,Jim	QA Reviewer